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THE Detroit board of health has been authorized to employ a laboratory expert as head of the Pasteur Institute and J. B. Kelly, Ann Arbor, has been elected to the position.

MR. F. A. FENTON, a graduate student of the University of Wisconsin and for a time deputy nursery inspector in the same state, has joined the Federal Bureau of Entomology and will be engaged in work with Mr. J. J. Davis at Lafayette, Indiana.

DR. N. ANNANDALE, superintendent of the Indian Museum, Calcutta, is to spend the greater part of a six months' leave of absence in Siam and Japan, studying the fauna of the lake regions.

WE learn from *Nature* that in commemoration of Captain Cook, a tablet has been placed on the school at Great Ayton, Cleveland, where the navigator received his education; a scholarship has also been established at Marton, in the same neighborhood, which was Captain Cook's birthplace. The cost of both has been provided out of the surplus of the fund raised for the erection of the Cook memorial in London.

DR. AUSTIN FLINT, a distinguished physician and alienist of New York City, long professor of physiology in the Bellevue Hospital Medical College and the Medical College of Cornell University, died on September 22, at the age of seventy-nine years.

DR. H. H. MCGREGOR, formerly instructor in chemistry, Adelbert College, and recently appointed instructor in biochemistry at the medical school, Western Reserve University, has died of typhoid fever in Toronto, Canada.

BESIDES the biological expedition to British Honduras, mentioned in these columns, the St. Louis University had a geological expedition in the field during the summer months. The personnel of the latter was Professors W. H. Agnew, J. Knipscher, H. F. Sloetmyer, J. A. Krance, A. H. Poetker, J. B. Macelwane, of the St. Louis University; Professors P. J. Troy and T. J. Motherway, of St. Mary's College, St. Marys, Kan.; Professor J. A. Kilian, of St. John's University, Toledo, Ohio, and Professor R. E. Connolly, of Campion College,

Prairie du Chien, Wis. The task assigned to the party was a threefold one. They were to undertake a preliminary study of the petrified forests of eastern Arizona; to investigate a number of structural and stratigraphic details in the Bright Angel Quadrangle of the Grand Canyon of the Colorado; and, after visiting several points of geologic interest on the Pacific coast, to make a general reconnaissance of the Pre-Cambrian, Cambrian and Pleistocene geology of parts of the Cordillera along the Canadian Pacific Railway. The members of the party secured a considerable quantity of valuable material from each of these regions, including a collection of Middle Cambrian trilobites and brachiopods from Mts. Stephen and Field. They also obtained a larger number of excellent photographs for laboratory and class-room illustration.

MR. W. J. WINTENBERG, of the Geological Survey, Ottawa, has returned from a successful archeological exploration at the prehistoric Iroquoian site near Roebuck, Ontario. He succeeded in mapping the traces of a palisade across the farm of Nathaniel White which, because it was under crop, was not excavated by Mr. Wintenberg in 1912 when he explored the greater part of the Roebuck site. This season's exploration also resulted in securing thirty-three human skeletons and eleven boxes of objects made by the prehistoric people of the place. Many of the skeletons were photographed in situ. Several of these skeletons show conclusively that the people suffered from terrible diseases which caused growths upon the bones, and the abnormal union of certain bones. Their teeth also gave them great trouble. Among the important specimens found were an unfinished comb made of antler and two barbed fish hooks made of bone. Many fragments of pottery and of pipes made of pottery were also found. Some of the latter are sculptured to represent the human face and are of artistic merit.

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#### UNIVERSITY AND EDUCATIONAL NEWS

THE board of trustees of the Ohio State University, Columbus, has authorized the establishment of a department of public health

and sanitation, which has been organized with the following appointments: Eugene M. McCampbell, M.D., professor of preventive medicine and head of the department; Robert G. Patterson, A.B., A.M., assistant professor of public health; Emery R. Hayhurst, M.D., assistant professor of industrial hygiene; William H. Dittoe, C. E., instructor in public health engineering; Frank G. Boudreau, M.D., instructor in public health and sanitation; Lear H. Van Buskirk, B.Sc., instructor in public health laboratory methods.

THE following appointments have been made to the faculty of Case School of Applied Science: Keith F. Adamson, the University of Pennsylvania, assistant professor of mechanical engineering; Melville F. Coolbaugh, the South Dakota School of Mines, assistant professor of chemistry; Roy E. Spencer, Harvard University, instructor in English; Lawrence G. Wesson, Harvard University, instructor in organic chemistry; Carl H. Wilson, Harvard University, instructor in chemistry; Arthur E. Bradley, recently of Cornell University, instructor in civil engineering; Allan A. Prior, Harvard University, instructor in electrical engineering; Perry F. Ellsworth, the Edison Electric Company, instructor in electricity and drawing; R. B. Reis, the Westinghouse Electric Company, instructor in mechanical engineering; H. F. Pasini, graduate of the Y. M. C. A. Training School of Springfield, director of the gymnasium; Bohlis Dahlman, instructor in gymnastics.

PROFESSOR H. F. WILSON, of Oregon State College, has gone to the University of Wisconsin as professor of economic entomology to take the place of Professor J. G. Sanders, who has become state entomologist for Wisconsin.

DR. R. G. PEARCE, associate in physiology, Western Reserve University, has been appointed assistant professor of physiology in the college of medicine, University of Illinois, Chicago.

DR. JAMES CRAIG NEEL has been appointed instructor in obstetrics and gynecology (on an

academic basis) in the University of California Medical School.

S. H. E. BARRACLOUGH, lecturer at the University of Sydney, has been appointed to the chair of mechanical engineering.

#### DISCUSSION AND CORRESPONDENCE

##### A PROPOSED CLASSIFICATION OF THE ATTITUDE OF GEOLOGIC SURFACES

THE familiar classification of folds has long been used by the geologist in working with oil and gas. Its inadequacy for his purposes is apparent when one considers that the determining factor in the gravitational separation of gas, oil and water is not the general plane of the bed, but the actual surface constituting the roof or floor of the reservoir. This may differ from the general plane of the bed due not only to irregularity of deposition, but also to irregularity of cementation, since the reservoir frequently constitutes only a portion of the sandstone bed. A mere classification of folds will not suffice, because it is the upper or the lower surface which concerns us, and they are frequently not parallel.

A lenticular bed which lies in general horizontal is not a fold at all, nor is one lying in a plane monocline. Yet the upper and lower surfaces of either of these have an attitude which is of great moment to the oil geologist, and must be considered along with the folded surfaces.

The following classification of geological surfaces is therefore presented here in the belief that it will be applicable to other geological problems as well as to those of the oil and gas geologist. There are four prime divisions:

1. Acline—no inclination.
2. Monocline—inclination in one general direction.
3. Anticline—inclination away from a point or axis.
4. Syncline—inclination toward a point or axis.

#### *Acline*

The acline is of small importance because one finds so generally that there is at least a